BIG HOLE RIVER
WATERSHED

Montana Partners for Fish & Wildlife

Introduction and General Description

The Big Hole Valley is the highest and widest mountain valley of southwestern Montana with much of the valley floor above 6,000 feet elevation. The Big Hole River emanates from the Beaverhead Mountains of the Bitterroot Range and winds for nearly 130 miles through a broad 1.8 million-acre valley. The Big Hole River is a world renown trout fishery and is one of only a few undammed rivers left in the west. Landownership in the Big Hole Watershed is 70% public ownership and 30% private. The public ownership is predominately located in the foothills and mountains, managed by the Forest Service and Bureau of Land Management. The valley bottom is mostly privately owned by large intact cattle ranches and is managed mostly for hay production and livestock grazing The valley is sparsely populated with about 900 residents; however, development pressures are increasing steadily.

Species of Special Concern

On August 22, 1805, Lewis and Clark first noted Arctic grayling in the Beaverhead River south of present day Dillon, Montana. At the time, Arctic grayling occurred in the Missouri River drainage upstream of present Great Falls, Montana. Sadly, by 1950, the Big Hole River contained the last remaining population of fluvial (river dwelling) Arctic grayling in the lower 48 states (8% of former Montana range). Reasons for decline within the Missouri River system include: habitat degradation, over fishing, drought, and competition from non-native fish. Fluvial Arctic grayling tend to live in river systems where large annual migrations can occur. Fur trappers in the early 1800's told of a Big Hole Valley with thousands of acres covered with riparian shrubs and beaver dams. This large scrub-shrub riparian area has changed considerable over the last century, but it is still home to such species as Canada lynx, wolverine, river otter, northern goshawk, westslope cutthroat trout, gray wolf, peregrine falcon, bald eagle, and Ute-Ladies' tresses.

Threats

This population of fluvial Arctic grayling is severely impacted by low flows and high temperatures in the Big Hole River in late summer. On August 29,1994, flows in the Big Hole River near Wisdom, Montana, reached 1.9 cfs (Montana Fish, Wildlife and Parks has determined that 20 cfs is necessary for minimum living conditions). At the same time, flow measurements taken in irrigation ditches above this site measured 22 cfs. Ranchers divert

water from the Big Hole River through mid-July annually for irrigation purposes; however, after July 15th water is diverted mostly for livestock watering. The dewatering of the Big Hole River is believed to be not only impacting Arctic grayling but many other fish and wildlife species. One of the other major threats to the valley is habitat fragmentation from subdivision. Other long-term impacts to fish and wildlife habitat in the Big Hole include removal of woody riparian vegetation, improper grazing management, poorly designed irrigation structures, improper timber harvest practices, noxious weeds, and mining.

Conservation Strategies

In 1988, the Arctic Grayling Recovery Program (AGRP) was formed in an attempt to preserve the Big Hole River Population as well as restore at least five other grayling populations. This workgroup is made up of individuals from Montana Fish, Wildlife and Parks, U.S. Fish and Wildlife Service, Forest Service, Bureau of Land Management, Trout Unlimited, and other private citizens. AGRP believes that in order to be successful, restoration efforts must include identification of habitat needs of Arctic grayling, grayling habitat protection and restoration, cooperation of private landowners in restoration and management efforts, research into the nature of competition between Arctic grayling and non-native trout and the role of habitat degradation in this relationship, and experimental introductions within the historic range. The Montana Partners for Fish and Wildlife Program signed a Cooperative Agreement with the Arctic Grayling Recovery Program to provide funding and technical assistance for fluvial Arctic grayling recovery in the upper Missouri River Drainage.

The Big Hole Watershed Committee was formed in 1995 to seek understanding of the river and agreement among individuals and groups with diverse viewpoints on water use and management in the Big Hole Watershed. The group is composed of local ranchers, sportsmen, outfitters, and local, state, and federal government agency representatives. A Partners for Fish and Wildlife representative sits on the committee as a technical advisor. Past and current projects that the Committee is working on include a drought management plan, land use plan, noxious weed control, and river recreation management plan.

The Partners for Fish and Wildlife Program has focused most of its efforts in the Big Hole Watershed on installing stock water wells that can be used in place of the inefficient irrigation ditches (wells use 99.5% less water). These wells allow ranchers to shut off irrigation diversions during critical late summer low flow periods. Critical flows are enhanced by these projects in the middle 5 miles of the Big Hole, as well as benefitting the whole lower river. In addition to drilling wells, the Partners Program has completed several other projects involving riparian restoration, instream restoration, and grazing management. The U.S. Fish and Wildlife Service does not have an active easement program in the valley at this time. Other conservation organizations are actively pursuing easements including Montana Fish, Wildlife and Parks, which has an easement on over 10,000 acres, and The Nature Conservancy, which has one easement on almost 13,000 acres. The Montana Land Reliance has several smaller easements in the Wise River area of the valley. There is considerable interest from traditional landowners and new conservation buyers in the valley in conservation easements. The Partners Program will continue to assist landowners in finding agencies or organizations to preserve habitat.

Off-site water development.

Partners

Numerous Private Landowners
Big Hole Watershed Committee
Arctic Grayling Recovery Program
Montana Chapter of Trout Unlimited
Montana Fish, Wildlife and Parks
U.S. Forest Service
Bureau of Land Management
National Fish and Wildlife Foundation
Beaverhead Conservation District
Montana Department of Natural Resource Conservation
Natural Resource Conservation Service
The Nature Conservancy
Montana Land Reliance
Montana State University
Trout Unlimited
Sandia National Laboratories

Deep Creek stream restoration tour.

Accomplishments

Stock Water Wells Developed	14 Wells
Riparian Habitat Restored	5 Miles
Instream Habitat Restored	1 Mile
Instream Flow Enhancement	65 Miles
Voluntary Perpetual Conservation Easements	23,000 Acres

Future Needs

As mentioned, the Partners Program to date has worked mostly on Arctic grayling related projects. There are many other opportunities for restoration of other habitats for other species. The Big Hole River project would benefit greatly from having a full-time staff.

Big Hole River Watershed (1,800,000 acres)